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AN OLD WORLD OCCURRENCE OF THE EOCENE AVIAN FAMILY PRIMOBUCCONIDAE

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Abstract.—*Parvicuculus minor* Harrison and Walker, from the Lower Eocene of England was incorrectly assigned to the Cuculidae (Cuculiformes) by its authors and is here referred to the Primobucconidae, a family hitherto known only from the Lower and Middle Eocene of Wyoming. *Procuculus minutus* Harrison and Walker, also from the Lower Eocene of England, belongs neither in the Cuculidae, among which it was originally placed, nor in the Primobucconidae; its affinities are at present considered uncertain. *Primoscens minutus* Harrison and Walker, described in a new Lower Eocene family, Primoscenidae, of Passeriformes, is not a passeriform, but its true affinities are likewise unclear. The presence of the Primobucconidae in the Lower Eocene of England and Wyoming lends support to other evidence for a land corridor across the North Atlantic in the early Eocene and further confirms the idea that the small arboreal birds of the Paleogene in the northern hemisphere were non-passerines.

The predominant group of small, arboreal birds recorded from the Eocene of North America is the family Primobucconidae, of which two genera and four species are known from the Lower Eocene of Wyoming, and four species in three additional genera from the Middle Eocene, also in Wyoming (Feduccia and Martin, 1976). These birds are apparently most closely related to the modern Bucconidae, which is currently placed in the Piciformes, although more probably the Bucconidae, along with the Galbulidae, belong with Coraciiformes (Sibley and Ahlquist, 1972; Burton, 1977; pers. observ.).

In a recent study of a Lower Eocene avifauna from England, Harrison and Walker (1977) named a new genus and species of cuckoo (Cuculiformes, Cuculidae), *Parvicuculus minor,* based on a tarsometatarsus lacking the inner trochlea. Their description and illustrations are sufficient to indicate that this specimen is clearly referable to the Primobucconidae and has no affinity with the Cuculidae. There is precedent for such an error in that the primobucconid *Uintornis lucaris* Marsh had been referred to the Cuculiformes (Cracraft and Morony, 1969) until the manifest differences between these two groups were detailed by Feduccia and Martin (1976).

We have compared Harrison and Walker's illustrations and descriptions of *Parvicuculus minor* with the characters listed in the diagnosis of the Primobucconidae (Feduccia and Martin, 1976:103–104) that are determinable

for both *Parvicuculus* and one or more taxa of primobucconids. *Parvicuculus* agrees with the Primobucconidae and differs from the Cuculidae in the following characters:

1) tarsometatarsus short, broad, and flat, not elongate as in the Cuculidae;
2) hypotarsus probably with only a single tendinal canal (Harrison and Walker refer to one hypotarsal groove in *Parvicuculus* "which was probably enclosed originally");
3) papilla for tibialis anticus on the extreme internal margin of the tarsometatarsus (Harrison and Walker state that this tubercle is "laterally placed" in *Parvicuculus* but their illustration indicates that this is a lapsus—if it actually were lateral it would be unlike the condition in the Cuculidae, in which this tubercle is medial but not as much so as in the Primobucconidae);
4) outer trochlea not greatly elevated relative to middle trochlea, not markedly expanded or twisted postero-medially to permit full reversal of outer toe.

The last feature proves conclusively that *Parvicuculus* cannot be included in the Cuculidae.

Harrison and Walker (1977) named a second new genus and species of Lower Eocene Cuculidae, *Procuculus minutus,* based on an extremely small distal end of a tarsometatarsus. This shows no indication of affinity to the primobucconid *Parvicuculus* and furthermore bears not the slightest resemblance to any cuckoo. We are at a loss to understand how this specimen could have been assigned to the Cuculidae and there is nothing by way of explanation in Harrison and Walker's "diagnosis," description, or comments. The outer trochlea of *Procuculus* is essentially unmodified and there is no indication that the outer toe was reversed, one of the more diagnostic features of the Cuculidae. The inner trochlea is medially expanded and bears a distinct medially projecting wing which is absent in the Cuculidae. The middle trochlea is decidedly less grooved than in the Cuculidae. Without reference to the actual specimen we are reluctant to say more about *Procuculus* except that it definitely cannot be referred to either the Cuculidae or the Primobucconidae.

The general morphology of the tarsometatarsus of *Parvicuculus* is similar to that of the Primobucconidae, although the species of that family that are known from comparable three-dimensional tarsometatarsi are all considerably larger Middle Eocene forms (and of these the proximal end is known for only one species), so that generic level differences between them and *Parvicuculus* may be expected. The North American specimens of primobucconids that are contemporaneous with *Parvicuculus* consist of more or less two dimensional, associated skeletons preserved in slabs, so that direct

comparison of them with *Parvicuculus* is not possible. Nevertheless, it is of interest that the tarsometatarsus of *Parvicuculus minor* is almost exactly the same length (11.7 mm) as that of the North American Lower Eocene primobucconid *Neanis kistneri* (11.5 mm; Feduccia, 1973). Thus there is a possibility that *Parvicuculus* Harrison and Walker 1977 may prove to be a synonym of *Neanis* Brodkorb 1965.

Regardless of the generic status of *Parvicuculus,* its significance lies in establishing that the Primobucconidae were present in western Europe at the same time that the family was flourishing in North America. This could be interpreted as supporting the mammalian evidence for faunal interchange between North America and western Europe *via* a northern corridor across the Atlantic in the early Eocene (McKenna, 1975).

The presence of the Primobucconidae in the Old World supports the thesis that the arboreal "perching" birds of the Paleogene were non-passerines (Feduccia, 1977), at least in North America and Europe. For this reason we must remark upon a supposed member of the Passeriformes, also described by Harrison and Walker (1977) from the Lower Eocene of England. This was based on a carpometacarpus which was described as a new genus and species, *Primoscens minutus,* and which was made the type of a new family of Passeriformes, the Primoscenidae. Harrison and Walker do not say why they assigned this specimen to the Passeriformes, nor do they discuss the relationships of this supposed new family to any of the families or suborders of Passeriformes. One may presume that they were influenced by the fact that the fossil has a fairly well developed intermetacarpal tuberosity, but among the "subpasserine" land birds this feature also occurs in the Coliiformes, Piciformes, and some of the Coraciiformes. At least one character used in the diagnosis of *Primoscens* ("distal facet for digit 3 extends only a little beyond that of digit 2"), indicates that the genus is misplaced as to order, for even in the most primitive passerines the third metacarpal characteristically extends distally well beyond the second metacarpal. We note as much similarity between *Primoscens* and some of the primitive Coraciiformes, such as *Brachypteracias* (Brachypteraciidae), as with the Passeriformes. We do not consider that *Primoscens* can be regarded as a passerine, and as yet there is no undoubted passeriform fossil of Eocene age known (cf. Brodkorb, 1978).

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